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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/327,282	06/04/1999	YUN CHEOL JEONG	8733D.6984	5275

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EXAMINER
NGUYEN, KEVIN M

ART UNIT	PAPER NUMBER
2674	33

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/327,282	JEONG ET AL.	
	Examiner	Art Unit	
	Kevin M. Nguyen	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-6 and 13-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-6 and 13-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/12/2003 has been entered. An action on the RCE follows:

Claim Objections

2. Claims 23, 25, 35 are objected to under 37 CFR 1.75(a) because although these claims meet the requirement 112/2d, i.e., the metes and bounds are determinable, however,

claim 23, last line, [lines'] should be read "lines"

claim 25, last line, [lines'] should be read "lines"

claim 35, line 7, "date" should be read "data"

It is in the best interest of the patent community that applicant, in his/her normal review and/or rewriting of the claims, to take into consideration these editorial situations and make changes as necessary.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 3, 4, 16-21 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Shiraki et al (US 6,504,522).

5. As to claims 3, 4 and 31, Shiraki et al teach a method of driving a matrix liquid crystal panel provided with a plurality of thin film transistors coupled to scanning wires GL1, GL2, GL3 and signal wires SL1, SL2, SL3, a plurality of liquid crystal cells CL, at intersecting points 10 of the scanning wires GL1, GL2, GL3 and the signal wires SL1, SL2, SL3, the method comprising steps of (see figures 2 and 3): applying a scanning signal voltages GL1, GL2, GL3; and supplying data signal voltages SL1, SL2, SL3 having a width enlarged (t1<t2<t3) in accordance with a distance from a source of the scanning signal to the signal wires GL1, GL2, GL3 (see figure 7, column 16, lines 60-67).

6. As to claims 16-18, Shiraki et al teach an apparatus for driving a matrix type liquid crystal panel provided with a plurality of thin film transistors coupled to scanning wires GL1, GL2, GL3 and signal wires SL1, SL2, SL3, a plurality of liquid crystal cells CL, at intersecting points 10 of the scanning wires GL1, GL2, GL3 and the signal wires SL1, SL2, SL3, the apparatus comprising: a scanning driver (3); a data driver (2) for supplying data signal voltages SL1, SL2, SL3 having a width enlarged (t1<t2<t3) in accordance with a distance from a source of the scanning signal to the signal wires GL1, GL2, GL3 (see figure 7, column 16, lines 60-67).

7. As to claims 19-21, Shiraki et al teach an apparatus for driving a matrix type liquid crystal panel provided with a plurality of thin film transistors coupled to scanning wires GL1, GL2, GL3 and signal wires SL1, SL2, SL3, a plurality of liquid crystal cells CL, at intersecting points 10 of the scanning wires GL1, GL2, GL3 and the signal wires SL1, SL2, SL3, the apparatus comprising: a scanning driver (3); a data driver (2); width control means (see figure 5) for making data signal voltages SL1, SL2, SL3 to be supplied to the signal wires have a different width (t1<t2<t3) in accordance with a distance from a source on the scanning signal to the signal wires GL1, GL2, GL3 (see figure 7, column 16, lines 60-67).

8. Claims 5, 6, 22, 32, 33 and 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsuura et al (US 6,175,351).

As to claims 5, 6, 22 and 32, Matsuura teaches a method for driving a matrix type liquid crystal panel provided with a plurality of thin film transistors 3 coupled to scanning wires 6 and signal wires 5, a plurality of liquid crystal cells Cp, at intersecting points of the scanning wires 6 and the signal wires 5 (figure 24), the apparatus comprising: applying data signal voltage (60); and supplying a scanning signal voltage having a width enlarged (t1<t2<t3) in accordance with a distance from a source of the signal wires (see figure 14, column 23, lines 9-21).

As to claim 33, Matsuura teaches a method for driving a matrix type liquid crystal panel provided with a plurality of thin film transistors 3 coupled to scanning wires 6 and signal wires 5, a plurality of liquid crystal cells Cp, at intersecting points of the scanning wires 6 and the signal wires 5 (figure 24), the apparatus comprising: applying data

signal voltage (60); and supplying a scanning signal voltage having a width enlarged (t1<t2<t3) in accordance with a distance from a source of the signal wires (see figure 14, column 23, lines 9-21); and a width expander (82) is utilized for controlling the width of the scanning signal voltage (see figure 12).

As to claims 13-15, Matsuura teaches an apparatus for driving a matrix type liquid crystal panel provided with a plurality of thin film transistors 3 coupled to scanning wires 6 and signal wires 5, a plurality of liquid crystal cells Cp, at intersecting points of the scanning wires 6 and the signal wires 5 (figure 24), the apparatus comprising: scanning side driving means 70; signal side driving means (60); width control means 82 for allowing the scanning signal voltage having a different width (t1<t2<t3) in accordance with a distance from a source of the signal wire (see figure 14, column 23, lines 9-21).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 23, 24 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraki et al in view of Lee (US 6,064,459).

As to claims 23 and 24, Shiraki et al teach all of the claimed limitations, except for "a plurality of scanning driver integrated circuit, a plurality of data driver integrated circuits." However, Lee reviews TFT-LCD having a plurality of data line driver integrated

circuit packages 40, and plurality of gate driver IC package 60 (see figure 1, col. 1, lines 23-28). It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize a plurality of gate driver IC and a plurality of data driver IC taught by Lee for the TFT-LCD driver circuit system disclosed by Shiraki et al because this would provide less image distortion due to cross talk between elements of the display (see col. 2, lines 35-36 of Lee).

As to claims 27-30, Shiraki et al teach all of the claimed limitations, except for "a plurality of scanning driver integrated circuit, a plurality of data driver integrated circuits." However, Lee reviews TFT-LCD having a plurality of data line driver integrated circuit packages 40, and plurality of gate driver IC package 60 (see figure 1, col. 1, lines 23-28). It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize a plurality of gate driver IC and a plurality of data driver IC taught by Lee for the TFT-LCD's driver circuit system disclosed by Shiraki et al because this would provide less image distortion due to cross talk between elements of the display (see col. 2, lines 35-36 of Lee).

11. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura et al in view of Lee.

As to claims 25 and 26, Matsuura teach all of the claimed limitations, except for "a plurality of scanning driver integrated circuit, a plurality of data driver integrated circuits." However, Lee reviews a TFT-LCD having a plurality of data line driver integrated circuit packages 40, and plurality of gate driver IC package 60 (see figure 1, col. 1, lines 23-28). It would have been obvious to a person of ordinary skill in the art at

the time of the invention to utilize a plurality of gate driver IC and a plurality of data driver IC taught by Lee for the TFT-LCD driver circuit system disclosed by Shiraki et al because this would provide less image distortion due to cross talk between elements of the display (see col. 2, lines 35-36 of Lee).

12. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Shiraki et al, and further in view of Matsuura et al.

As to claim 34, Lee reviews a TFT-LCD having a plurality of data line driver integrated circuit packages 40, and plurality of gate driver IC package 60 (see figure 1, col. 1, lines 23-28). Lee fails to review a plurality of width expanders for controlling widths of the data signal provided to the data lines in accordance with a distance from the data lines to the scanning signal sources. However, Shiraki et al teach a plurality of width expanders (see figure 5) for controlling widths of the data signal provided to the data lines in accordance with a distance from the data lines to the scanning sources (see figure 7, column 16, lines 60-67). It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize a plurality of width expanders taught by Shiraki et al for data driver circuits disclosed in the TFT-LCD system of Lee because this would provide high quality images and the low-power consumption of a gray-scale power supply while fabricating the driving circuitry at low cost (see col. 2, lines 57-61, col. 3, lines 45-46, and col. 4, lines 14-15 of Shiraki et al).

Therefore, Lee and Shiraki et al teach all of the claimed limitations, except for "a scanning signal voltage have varying widths depending on the distance of the scanning lines from the data signal sources." However, Matsuura teaches width control means 82

for allowing the scanning signal voltage having a different width (t1<t2<t3) in accordance with a distance from a source of the signal wire (see figure 14, column 23, lines 9-21).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize width control means 82 for allowing the scanning signal voltage having a different width (t1<t2<t3) in accordance with a distance from a source of the signal wire taught by Matsuura for row scanning driver circuits disclosed in the TFT-LCD system of Lee and Shiraki et al because this would minimize the variation in luminance and the flickering, prevent in brightness due to the reduction of the effective display time, and thus the display quality is significantly improved (see col. 23, lines 26-30 of Matsuura).

13. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Matsuura et al, and further in view of Shiraki et al.

As to claim 35, Lee reviews a TFT-LCD having a plurality of data line driver integrated circuit packages 40, and plurality of gate driver IC package 60 (see figure 1, col. 1, lines 23-28). Lee fails to reviews a plurality of width expanders for controlling widths of a scanning signal provided to the scanning lines in accordance with a position from the scanning lines to the data signal sources. However, Matsuura et al teach width control means 82 for allowing the scanning signal voltage having a different width (t1<t2<t3) in accordance with a distance from a source of the signal wire (see figure 14, column 23, lines 9-21).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize width control means 82 for allowing the scanning signal voltage having a different width (t1<t2<t3) in accordance with a distance from a source of the signal wire taught by Matsuura et al for row scanning driver circuits disclosed in the TFT-LCD system of Lee because this would minimize the variation in luminance and the flickering, prevent in brightness due to the reduction of the effective display time, and thus the display quality is significantly improved (see col. 23, lines 26-30 of Matsuura et al).

Therefore, Lee and Matsuura et al teach all of the claimed limitations, except for "a data signal voltages have varying widths depending on the distance of the data lines from the scanning signal sources." However, Shiraki et al teach a method of driving a matrix liquid crystal panel provided supplying data signal voltages SL1, SL2, SL3 having a width enlarged (t1<t2<t3) in accordance with a distance from a source of the scanning signal to the signal wires GL1, GL2, GL3 (see figure 7, column 16, lines 60-67).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize data signal voltages SL1, SL2, SL3 having a width enlarged (t1<t2<t3) in accordance with a distance from a source of the scanning signal to the signal wires GL1, GL2, GL3 taught by Shiraki et al for row data driver circuits disclosed in the TFT-LCD system of Lee and Matsuura et al because this would provide high quality images and the low-power consumption of a gray-scale power supply while fabricating the driving circuitry at low cost (see col. 2, lines 57-61, col. 3, lines 45-46, and col. 4, lines 14-15 of Shiraki et al).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kevin M. Nguyen** whose telephone number is **703-305-6209**. The examiner can normally be reached on MON-THU from 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard A Hjerpe** can be reached on **703-305-4709**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

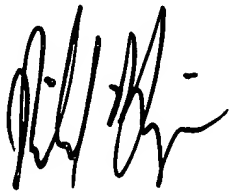
or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Kevin M. Nguyen
Examiner
Art Unit 2674



RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600